



Physical Science with Earth Science

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STANDARDS	PAGE REFERENCES
<p>STANDARD 5.1 Scientific Processes</p>	
<p><i>ALL STUDENTS WILL DEVELOP PROBLEM-SOLVING, DECISION-MAKING AND INQUIRY SKILLS, REFLECTED BY FORMULATING USABLE QUESTIONS AND HYPOTHESES, PLANNING EXPERIMENTS, CONDUCTING SYSTEMATIC OBSERVATIONS, INTERPRETING AND ANALYZING DATA, DRAWING CONCLUSIONS, AND COMMUNICATING RESULTS.</i></p>	
<p>Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:</p>	
<p>5.1.12 A. Habits of Mind</p>	
<p>1. When making decisions, evaluate conclusions, weigh evidence, and recognize that arguments may not have equal merit.</p>	<p>Student Edition: 46-50, 54-57 <i>Applying Science</i> 13, 428, 499 <i>Internet Lab</i> 508-509 <i>Lab</i> 51, 58-59 <i>MiniLAB</i> 47</p>
<p>2. Assess the risks and benefits associated with alternative solutions.</p>	<p>Student Edition: 42-50, 52-57 <i>Applying Science</i> 2, 14, 49, 428, 499 <i>Internet Lab</i> 508-509 <i>Lab</i> 51, 58-59 <i>MiniLAB</i> 47, 157 <i>National Geographic</i> 44 <i>Oops</i> 60 <i>Time-Science and Society</i> 510</p>

	<p>Teacher Wraparound Edition: A 44; D 49, 506; FYI 48, 498, 504; IM 497, 503,</p>
<p>3. Engage in collaboration, peer review, and accurate reporting of findings.</p>	<p>Student Edition: <i>Unit Projects</i> 3, 67, 251, 389, 549, 685 <i>Web Quest</i> 2, 66, 250, 388, 548, 684 Teacher Wraparound Edition: <i>Unit Projects</i> 3, 67, 251, 389, 549, 685 <i>Web Quest</i> 2, 66, 250, 388, 548, 684</p>
<p>4. Explore cases that demonstrate the interdisciplinary nature of the scientific enterprise.</p>	<p>Student Edition: <i>Integration</i> 9, 30, 54, 42, 48, 108, 114, 132, 139, 143, 164, 201, 218, 228, 232, 275, 293, 297, 307, 377, 402, 405, 427, 428, 465, 496, 505, 522, 536, 558, 561, 564, 614, 627, 631, 631, 648, 668, 694, 705, 725, 740, 768, 774, 790, 799, 804, 818, 827, 837</p>
<p>5.1.12 B. Inquiry and Problem Solving</p>	
<p>1. Select and use appropriate instrumentation to design and conduct investigations.</p>	<p>Student Edition: <i>Design Your Own Lab:</i> 28-29, 88-89, 144-145, 242-243, 344-345, 414-415, 446-447, 540-541, 568-569 <i>Model and Invent Lab</i> 176-177</p>
<p>2. Show that experimental results can lead to new questions and further investigations.</p>	<p>Student Edition: <i>Design Your Own Lab:</i> 28-29, 144-145, 242-243, 344-345, 446-447, 540-541, 568-569</p>
<p>5.1.12 C. Safety</p>	
<p>1. Understand, evaluate and practice safe procedures for conducting science investigations.</p>	<p>Student Edition: 859-861 Teacher Wraparound Edition: 19T-20T</p>

STANDARDS	PAGE REFERENCES
STANDARD 5.2 Science and Society	
ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF HOW PEOPLE OF VARIOUS CULTURES HAVE CONTRIBUTED TO THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY, AND HOW MAJOR DISCOVERIES AND EVENTS HAVE ADVANCED SCIENCE AND TECHNOLOGY.	
Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:	
5.2.12 A. Cultural Contributions	
<p>1. Recognize the role of the scientific community in responding to changing social and political conditions and how scientific and technological achievement effect historical events.</p>	<p>Student Edition: 46-50 <i>Applying Science</i> 50 <i>Science and Language</i> 30, 542 <i>Time Science and Society</i> 510, 678, 778 Teacher Wraparound Edition: A 778</p>
5.2.12 B. Historical Perspectives	
<p>1. Examine the lives and contributions of important scientists who effected major breakthroughs in our understanding of the natural and designed world.</p>	<p>Student Edition: 38, 98, 220, 431, 460, 581, 670, 671, 705, 721-722, 790, 823 <i>Oops</i> 60, 210, 744 <i>Time Science and History</i> 120, 478, 810 Teacher Wraparound Edition: 712 A 582; D 744</p>
<p>2. Discuss significant technological achievements in which science has played an important part as well as technological advances that have contributed directly to the advancement of scientific knowledge.</p>	<p>Student Edition: 13, 40-45 <i>National Geographic</i> 44 <i>Time Science and History</i> 146, 312, 382, 448, 600</p>
<p>3. Describe the historical origin of important scientific developments such as atomic theory, genetics, and plate tectonics showing how scientific theories develop, are tested, and can be replaced or modified in light of new information and improved investigative techniques.</p>	<p>Student Edition: 218-219, 220, 354-361, 581-583, 722, 823, 837 <i>Applying Math</i> 351 <i>National Geographic</i> 233 Teacher Wraparound Edition: A 582</p>

STANDARDS	PAGE REFERENCES
STANDARD 5.3 Mathematical Applications	
<i>ALL STUDENTS WILL INTEGRATE MATHEMATICS AS A TOOL FOR PROBLEM-SOLVING IN SCIENCE, AND AS A MEANS OF EXPRESSING AND/OR MODELING SCIENTIFIC THEORIES.</i>	
Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:	
5.3.12 A. Numerical Operations	
Reinforce indicators from previous grade level.	
1. Express quantities using appropriate number formats. <ul style="list-style-type: none"> ▶ decimals ▶ percents ▶ scientific notation 	Student Edition: 26, 50, 57, 195, 213, 229,237, 241, 247, 309, 343, 459, 461, 467, 481, 500, 506, 513, 522, 539, 696, 758, 790, 795, 800, 829, 835, 839 865-866, 874
5.3.12 B. Geometry and Measurement	
1. When performing mathematical operations with measured quantities, express answers to reflect the degree of precision and accuracy of the input data.	Student Edition: 14-21, 872, 874 <i>Applying Math 16</i> <i>Lab 28-29</i> <i>Launch Lab 5</i> <i>National Geographic 20</i> <i>MiniLAB 19</i> <i>Teacher Wraparound Edition:</i> A 17, 18, 20; AIL 28; IM 15; MM 16; QD 17
5.3.12 C. Patterns and Algebra	
1. Apply mathematical models that describe physical phenomena to predict real world events.	Student Edition: 879-890 <i>Applying Math 16, 24, 72, 102, 116, 130, 132, 156, 162, 198, 220, 255, 258, 297, 325, 357, 411, 412, 459, 537, 565, 621, 665, 705, 728, 757, 798, 820</i>
5.3.12 D. Data Analysis and Probability	
1. Construct and interpret graphs of data to represent inverse and non-linear relationships, and statistical distributions.	Student Edition: 22-25, 74-75, 77, 79, 93, 493, 596, 736-740, 875-876 <i>Lab 27, 653</i> <i>MiniLAB 25</i>

STANDARDS	PAGE REFERENCES
STANDARD 5.4 Nature and Process of Technology	
<i>ALL STUDENTS WILL UNDERSTAND THE INTERRELATIONSHIPS BETWEEN SCIENCE AND TECHNOLOGY AND DEVELOP A CONCEPTUAL UNDERSTANDING OF THE NATURE AND PROCESS OF TECHNOLOGY.</i>	
Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:	
5.4.12 A. Science and Technology	
1. Know that scientific inquiry is driven by the desire to understand the natural world and seeks to answer questions that may or may not directly influence humans, while technology is driven by the need to meet human needs and solve human problems.	Student Edition: 6, 12-13, 38-41 <i>Launch Lab</i> 37 Teacher Wraparound Edition: 4E, 36E A 41; IL 13, 38; QD 41; RP 6
5.4.12 B. Nature of Technology	
1. Assess the impacts of introducing a new technology in terms of alternative solutions, costs, tradeoffs, risks, benefits and environmental impact.	Student Edition: 42-50, 52-57, 485-506 <i>Applying Science</i> 2, 14, 49, 428, 499 <i>Lab</i> 51, 58-59, 507, 508-509 <i>MiniLAB</i> 47, 157, 489, 502 <i>National Geographic</i> 44 <i>Oops</i> 60 <i>Time-Science and Society</i> 510 <i>Use the Internet Lab</i> 508-509 Teacher Wraparound Edition: A 44; D 49, 506; FYI 48, 498, 504; IM 497, 503; RP 46
5.4.12 C. Technological Design	
1. Plan, develop, and implement a proposal to solve an authentic, technological problem.	Student Edition: <i>Lab</i> 58-59, 144-145, 242-243, 344-345, 540-541, 568-569, 840-841 <i>MiniLAB</i> 489 Teacher Wraparound Edition: AIL 278; IL 274, 344, 490,

STANDARDS	PAGE REFERENCES
STANDARD 5.6 Chemistry	
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE AND BEHAVIOR OF MATTER.	
Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:	
5.6.12 A. Structure and Properties of Matter	
1. Know that atoms are made of a positive nucleus surrounded by negative electrons and that the nucleus, a tiny fraction of the volume of an atom, is composed of protons and neutrons, each almost 2,000 times more massive than an electron.	Student Edition: 579-583, 584,786-787 <i>National Geographic</i> 582 <i>MiniLAB</i> 581 Teacher Wraparound Edition: QD 580; FYI 580; IM 586;MM 787; RP 584
2. Know that the number of protons in the nucleus defines the element.	Student Edition: 585 <i>Lab</i> 693 Teacher Wraparound Edition: 576F D 695
3. Know that an atom's electron arrangement, particularly the outermost electrons, determines how the atom can interact with other atoms.	Student Edition: 689-692, <i>MiniLAB</i> 698 Teacher Wraparound Edition: 686E-F QD 691;UA 690
4. Explain that atoms form bonds (ionic and covalent) with other atoms by transferring or sharing electrons.	Student Edition: 694-702 <i>Launch Lab</i> 687 <i>National Geographic</i> 699 <i>MiniLAB</i> 698 <i>Lab</i> 710-711 Teacher Wraparound Edition: A 696, 697;IL 697; QD 696
5. Explain how the Periodic Table of Elements reflects the relationship between the properties of elements and their atomic structure.	Student Edition: 588-595 <i>MiniLAB</i> 589 <i>Lab</i> 597 <i>Use the Internet Lab</i> 598-599 Teacher Wraparound Edition: 576F A 590, 594;FYI 589;IL 595; IM 591, 593; LD 591;

	QD 590
6. Know that many biological, chemical and physical phenomena can be explained by changes in the arrangement and motion of atoms and molecules.	Student Edition: 698-700, 701-702, 708 <i>MiniLAB</i> 555, 563, 698, 708 <i>National Geographic</i> 553 <i>Oops</i> 712 Teacher Wraparound Edition: IQ 564; LD 562, 708
7. Recognize that the properties of matter are related to the structure and arrangement of their molecules and atoms, such as in metallic and nonmetallic crystals and carbon compounds.	Student Edition: 595-596, 703-704, 730-733 Teacher Wraparound Edition: A 73; M 732; QD 704, 731
8. Know that different levels of energy of an atom are associated with different configurations of its electrons.	Student Edition: 592-594, 691-692 Teacher Wraparound Edition: A 594
5.6.12 B. Chemical Reactions	
1. Explain that the rate of reactions among atoms and molecules depends on how often they encounter one another and that the rate is affected by nature of reactants, concentration, pressure, temperature, and the presence of a catalyst.	Student Edition: 738-739, 752-763,, 771-772 <i>Lab</i> 741, 742-743 <i>MiniLAB</i> 756 Teacher Wraparound Edition: 718F, 749-750F A 753; IL 739, 761; IM 760; LD 762; QD 755;
2. Show that some changes in chemical bonds require a net input or net release of energy.	Student Edition: 734-738 <i>National Geographic</i> 737 <i>MiniLab</i> 738 Teacher Wraparound Edition: 718F ,A 735, 737; LD 736

STANDARDS	PAGE REFERENCES
STANDARD 5.7 Physics	
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF NATURAL LAWS AS THEY APPLY TO MOTION, FORCES, AND ENERGY TRANSFORMATIONS.	
Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:	
5.7.12 A. Motions and Forces	
<p>1. Apply the mathematical relationship between the mass of an object, the net force exerted on it, and the resulting acceleration.</p>	<p>Student Edition: 70-86, 98-103 <i>Applying Math</i> 72, 93, 102 <i>Lab</i> 8, 88-89 <i>Launch Lab</i> 69 <i>MiniLAB</i> 71, 83, 99 <i>National Geographic</i> 78 Teacher Wraparound Edition: 68EF, 95E A 85; IL 85; IM 74; LD 79, 83, 103; MM 100; QD 73, 79, 82, 102</p>
<p>2. Explain that whenever one object exerts a force on another, an equal and opposite force is exerted on the first object.</p>	<p>Student Edition: 113-117 <i>Applying Math</i> 116 <i>National Geographic</i> 115 Teacher Wraparound Edition: 96F IM 116; RP 113; QD115</p>
<p>3. Recognize gravity as a universal force of attraction between masses and that the force is proportional to the masses and inversely proportional to the square of the distance between them.</p>	<p>Student Edition: 104-111, 187 <i>Applying Math</i> 123 <i>Lab</i> 112 <i>Launch Lab</i> 97 <i>MiniLab</i> 110 Teacher Wraparound Edition: 96E A 108; D 10; IL 109; IM 106; QD 105, 106, 107</p>
<p>4. Recognize that electrically charged bodies can attract or repel each other with a force that depends upon the size and nature of the charges and the distance between them and know that electric forces play an important role in explaining the structure and properties of matter.</p>	<p>Student Edition: 392-405, 407-413, 786-788 <i>Applying Math</i> 411 <i>Lab</i> 406, 414-415 <i>Launch Lab</i> 391 <i>National Geographic</i> 397 <i>MiniLAB</i> 398, 402</p>

	<p>Teacher Wraparound Edition: 390E A 393, 409; D 394, 396; IM 390F 396, 403; LD 408; MM 787</p>
<p>5. Know that there are strong forces that hold the nucleus of an atom together and that significant amounts of energy can be released in nuclear reactions (fission, fusion, and nuclear decay) when these binding forces are disrupted.</p>	<p>Student Edition: 49, 494-500, 786-794, 801-806 <i>Applying Science</i> 49 <i>Lab</i> 807, 808-809 <i>Launch Lab</i> 785 <i>MiniLAB</i> 789, 802 <i>National Geographic</i> 805 Teacher Wraparound Edition: 784E-F FYI 803; IL 793; IM 786; MM 787; QD 786, 802; UA 794</p>
<p>6. Explain how electromagnetic, gravitational, and nuclear forces can be used to produce energy by causing chemical, physical, or nuclear changes and relate the amount of energy produced to the nature and relative strength of the force.</p>	<p>Student Edition: 137, 394, 440-444, 494-500 <i>National Geographic</i> 441 <i>Time Science and History</i> 448 Teacher Wraparound Edition: 422E A 443, 498; D 499; FYI 497, 498; IM 422F; MM 496</p>
<p>7. Demonstrate that moving electric charges can produce magnetic forces and moving magnets can produce electric forces.</p>	<p>Student Edition: 438-439 <i>LAB</i> 445, 446-447 Teacher Wraparound Edition: 422E A 441; IM 439; MM 436; QD 440</p>
<p>8. Recognize that magnetic and electrical forces are different aspects of a single electromagnetic force.</p>	<p>Student Edition: 424-437 <i>Launch Lab</i> 423 <i>MiniLAB</i> 427 Teacher Wraparound Edition: 422E D 432; IL 434; LD 428; QD 426, 433</p>
<p>5.7.12 B. Energy Transformations</p>	
<p>1. Explain how the various forms of energy (heat, electricity, sound, light) move through materials and identify the factors that affect that movement.</p>	<p>Student Edition: 266-270, 276, 288-293, 294-299, 301-309, 320-337 <i>Applying Math</i> 297, 325 <i>Lab</i> 271, 278-279, 300, 308-309, 338, 344-345 <i>Launch Lab</i> 287, 319 <i>MiniLAB</i> 267, 295, 309, 323, 336</p>

	<p><i>National Geographic</i> 268, 292, 334 <i>Time Science and History</i> 312 Teacher Wraparound Edition: 252E, 286E, 318E A 292; AIL 310; D 296, 323; IL 322; IM 269, 286F, 297; LD 289, 333; QD 268, 298, 296, 324</p>
2. Explain that while energy can be transformed from one form to another, the total energy of a closed system is constant.	<p>Student Edition: 135-135, 139-143, 144-145, 163, 486 <i>Lab</i> 144-145 <i>National Geographic</i> 138 <i>Time Science and History</i> 146 Teacher Wraparound Edition: LD 138; QD 136, 163</p>
3. Recognize that whenever mechanical energy is transformed, some heat is dissipated and is therefore unavailable for use.	<p>Student Edition: 136-139 <i>MiniLAB</i> 140 Teacher Wraparound Edition: A 138; QD 136</p>
4. Explain the nature of electromagnetic radiation and compare the components of the electromagnetic spectrum from radio waves to gamma rays.	<p>Student Edition: 456-475, 822 <i>Applying Mathematics</i> 459 <i>Lab</i> 468,476-477 <i>Launch Lab</i> 455 <i>MiniLAB</i> 458, 463 <i>National Geographic</i> 471 <i>Time Science and History</i> 478 Teacher Wraparound Edition: 454E-F A 460, 471, 474; D 473; IL 464; QD 457, 459, 465; RP 462</p>

STANDARDS	PAGE REFERENCES
STANDARD 5.8 Earth Science	
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, DYNAMICS, AND GEOPHYSICAL SYSTEMS OF THE EARTH.	
Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:	
5.8.12 A. Earth's Properties and Materials	
1. Explain the interrelationship of the geosphere, hydrosphere, and the atmosphere.	Student Edition: 634-635, 646-668, 522, 566 <i>Lab</i> 653, 656 <i>miniLAB</i> 647 <i>National Geographic</i> 531, 667 Teacher Wraparound Edition: FYI 634,650; A 651; D 651, 658; IM 649; LD 659, 665; QD 650, 657, 664; UA 656
5.8.12 B. Atmosphere and Water	
1. Describe how weather (in the short term) and climate (in the long term) involve the transfer of energy in and out of the atmosphere.	Student Edition: 518-534 <i>Launch Lab</i> 517 <i>miniLAB</i> 519, 525 <i>National Geographic</i> 531 Teacher Wraparound Edition: 516E-F A 521, 531, 533; D 526, 532; IL 521; IM 527; MM 530; QD 520, 527, 533; RP 518; UA 530
5.8.12 C. Processes that Shape the Earth	
1. Use the theory of plate tectonics to explain the relationship among earthquakes, volcanoes, mid-ocean ridges, and deep-sea trenches.	Student Edition: 354-378 <i>Lab</i> 379, 382-382 <i>Launch Lab</i> 353 <i>MiniLAB</i> 364, 375 <i>Time Science and History</i> 382 Teacher Wraparound Edition: 352E-F A 355, 371; IL 367; IM 356 ; LD 376; QD 360, 365, 371, 374; UA 357
2. Know that Earth is a system in which chemical elements exist in fixed amounts and move through the solid Earth, oceans, atmosphere,	Student Edition: 609, 612-615, 617-629, 630-635, 646-668

<p>and living things as part of geochemical cycles.</p>	<p><i>Lab</i> 636-637, 653, 656 <i>Launch Lab</i> 551 <i>miniLAB</i> 628, 647 <i>National Geographic</i> 633, 667 <i>Time science and Society</i> 638, 678 Teacher Wraparound Edition: 606E-F A 620,622, 651; D 651, 658; FYI 625, 634,650; IL 614; IM 618, 649; LD 635, 659, 665; QD 619, 625, 626, 650, 657, 664; UA 619, 656</p>
<p>3. Recognize that the evolution of life on Earth has changed the composition of Earth's atmosphere through time.</p>	<p>Student Edition: 466, 492, 518-522, 535-539 <i>Lab</i> 51 <i>Science and Language</i> 542 Teacher Wraparound Edition: 516E-F A 492; D 492, 520; DI 493; FYI 519, 537, 538; RP 535; QD 536</p>
<p>5.8.12 D. How We Study the Earth</p>	
<p>1. Analyze the evidence produced by a variety of techniques that is used to understand changes in the Earth that have occurred over time.</p> <ul style="list-style-type: none"> ▶ topography ▶ fossils ▶ rock stratification ▶ ice cores ▶ radiometric data 	<p>Student Edition: 354-357, 370-372, 669-672, 671-673, 674-675, 786-800 <i>Lab</i> 676-677 <i>Launch Lab</i> 785 <i>MiniLAB</i> 789 <i>Time Science and History</i> 600 Teacher Wraparound Edition: 684E-F A 371; D 632; FYI 632, 798; IL 793; IM 788; MM 674; QD 371, 670, 671, 798; UA 794</p>

STANDARDS	PAGE REFERENCES
STANDARD 5.9 Astronomy and Space Science	
<i>ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE ORIGIN, EVOLUTION, AND STRUCTURE OF THE UNIVERSE.</i>	
Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:	
5.9.12 A. Earth, Moon, Sun System	
Reinforce indicators from previous grade level.	
1. Investigate the Earth, moon, and sun as a system and explain how the motion of these bodies results in the phases of the moon and eclipses.	Student Edition: 186, 197, 199-202 <i>Launch Lab</i> 185 <i>MiniLAB</i> 200 Teacher Wraparound Edition: IL 202; MM 201; QD 203
2. Explain how the regular and predictable motions of the Earth and moon produce tides.	Student Edition: 197-199 Teacher Wraparound Edition: D 199; FYI 199; IM 198
3. Explain how the tilt, rotation, and orbital pattern of the Earth relative to the sun produce seasons and weather patterns.	Student Edition: 190-195 <i>Lab</i> 196 <i>MiniLAB</i> 195 Teacher Wraparound Edition: IM 193; FYI 191; LD 193; QD 194
5.9.12 B. Solar System	
1. Explain that our solar system coalesced from a nebular cloud of gas and dust left from exploding stars.	Student Edition: 206-207, 221-225, 231-237 <i>Lab</i> 208-209 <i>Launch Lab</i> 217 <i>MiniLAB</i> 235 Teacher Wraparound Edition: 216E A 206, 221; IL 236; LD 226; MM 225; QD 221
5.9.12 C. Stars	
1. Describe the physical characteristics, stages of development, and the apparent motions of stars.	Student Edition: 818, 823-835 <i>Lab</i> 830 <i>Launch Lab</i> 817

	<p><i>National Geographic</i> 826</p> <p>Teacher Wraparound Edition: A 825; D 825; IL 832; IM 827; LD 827; MM 828; RP 823</p>
<p>5.9.12 D. Galaxies and Universe</p>	
<p>1. Describe data gathering and observation technologies and explain how they are used to explore the solar system and beyond.</p>	<p>Student Edition: 186-187, 204-207, 227-229, 819-822 <i>Lab</i> 208-209, 230-231 <i>National Geographic</i> 205,233 <i>MiniLAB</i> 819 Teacher Wraparound Edition: 816E A 821; FYI 227, 228; QD 820</p>
<p>2. Cite evidence to describe the scientific theory of the origin of the universe and the current explanations of its evolution.</p>	<p>Student Edition: 836-839 <i>Lab</i> 840-841 Teacher Wraparound Edition: 816E QD 838</p>

STANDARDS	PAGE REFERENCES
STANDARD 5.10 Environmental Studies	
<i>ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE ENVIRONMENT AS A SYSTEM OF INTERDEPENDENT COMPONENTS AFFECTED BY HUMAN ACTIVITY AND NATURAL PHENOMENA.</i>	
Building upon the knowledge and skills gained in the previous grades, by the end of Grade 12 students will:	
5.10.12 A. Natural Systems and Interactions	
<p>1. Distinguish naturally occurring process from those believed to have been modified by human interaction or activity.</p> <ul style="list-style-type: none"> ▶ climate change ▶ ozone production ▶ erosion and deposition ▶ threatened and endangered species 	<p>Student Edition: 466, 492, 518-522, 535-539 <i>Lab 51</i> <i>Science and Language 542</i> <i>Teacher Wraparound Edition:</i> 516E-F A 492, 538; D 492, 520; DI 493; FYI 519, 537, 538; LD 537; RP 535; QD 536</p>
5.10.12 B. Human Interactions and Impact	
<p>1. Assess the impact of human activities on the cycling of matter and the flow of energy through ecosystems.</p>	<p>Student Edition: 652, 667-668 <i>Time Science and Society 678</i> <i>Teacher Wraparound Edition:</i> 667 LD 665; QD 664</p>
<p>2. Use scientific, economic, and other data to assess environmental risks and benefits associated with societal activity.</p>	<p>Student Edition: 486-506 <i>Applying Science 13, 428, 499</i> <i>Lab. 507, 508-509</i> <i>Launch Lab 485</i> <i>MiniLAB 1489, 502</i> <i>National geographic 368</i> <i>Teacher Wraparound Edition:</i> A 492; D 492, 499, 503, 505, 506; IL 490; LD 491, 499</p>

ABBREVIATIONS FOR PHYSICAL SCIENCE with EARTH SCIENCE

A	ACTIVITY
AIL	ALTERNATIVE INQUIRY LAB
D	DISCUSSION
DI	DAILY INTERVENTION
DL	DEMO LAB
FYI	FOR YOUR INFORMATION
IL	INQUIRY LAB
IM	IDENTIFY MISCONCEPTION
LD	LAB DEMO
MM	MAKE A MODEL
RP	READING PREVIEW
UA	USE ANALYSIS
QD	QUICK DEMO